

The file name refers to the reference number, the AP42 chapter and section. The file name "ref02_c01s02.pdf" would mean the reference is from AP42 chapter 1 section 2. The reference may be from a previous version of the section and no longer cited. The primary source should always be checked.

Key Chemicals

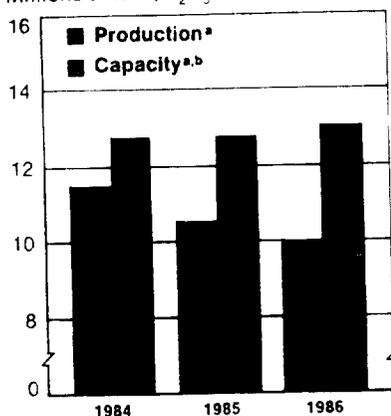


Phosphoric acid

- **Production down again**
- **Capacity up slightly**
- **Prices holding**

PRODUCTION/CAPACITY

Millions of tons, P_2O_5



^a Wet process and furnace acids ^b First quarter

MAJOR PRODUCERS

CF Industries, Freeport Chemical, Occidental Chemical, Texasgulf Chemicals, Williams Cos.

HOW MADE

Reaction of phosphate rock and sulfuric acid; burning of elemental phosphorus and subsequent reaction with water

MAJOR DERIVATIVES

Ammonium phosphates 60%, triple superphosphate 15%

MAJOR END USES

Fertilizers 85%, detergent materials 5%

FOREIGN TRADE

Exports—(as the acid) continuing strong at more than 1 million tons of P_2O_5 , imports—remaining small at less than 25,000 tons of P_2O_5

PRICE

List about \$300 per ton of P_2O_5

Lower worldwide demand for U.S. phosphate fertilizers will knock down U.S. production of phosphoric acid 5% or more in 1986. Both domestic and export demand for phosphate fertilizers will be down this year. Other uses of phosphoric acid—including that made from electric furnace-produced elemental phosphorus—will do no better than hold even, based on early forecasts.

If major foreign buyers of U.S.-produced fertilizers return to the market strongly in the second half of 1986, production this year could total 10 million tons of phosphoric acid as P_2O_5 . That would be down 5% from the 10.5 million tons estimated to have been produced in 1985 and down more than 12% from the 11.4 million tons produced in 1984. If the major importers of such products as diammonium phosphate (DAP)—India and China—do not return to their 1985 buying level, then phosphoric acid production will decline to below 10 million tons as P_2O_5 .

Capacity to make wet-process phosphoric acid by reacting sulfuric acid with phosphate rock slowly inched up in 1985 to about 12.4 million tons of P_2O_5 . An additional 600,000 tons of capacity is based on burning of elemental phosphorus, and the product is called furnace acid. If some 9.5 million tons of wet-process acid are produced in 1986, the plant capacity available as the year began will run at an average rate of nearly 77%. Furnace acid operating rates will be somewhat higher.

The major additions to wet-process phosphoric acid capacity during 1985 were about 250,000 tons of P_2O_5 by Texasgulf Chemicals and less than 100,000 tons by J. R. Simplot. No significant additions to furnace acid capacity occurred last year. By the end of 1986, Monsanto will end its production of elemental phosphorus in Tennessee, but whether its furnace acid production will be reduced is uncertain.

Most furnace phosphoric acid goes

into such end uses as detergent components (tripolyphosphates), foods and beverages, metal treating, and many small uses. As a group, uses of furnace acid are declining because of slowly tightening limits on use of detergent phosphates and changes in consumer product formulations. During 1986, that decline will account for part of the lower production total for phosphoric acid.

About 95% of wet-process phosphoric acid goes into fertilizers of one kind or another. The other 5% goes mostly into animal feed supplements, with a tiny amount being made into sodium tripolyphosphate for detergents. In 1985, more than 9.2 million tons of phosphoric acid as P_2O_5 went to fertilizers, either in the U.S. or in foreign countries. Sources indicate that more than 1 million tons was exported as either regular (54%) or super (70%) acids for subsequent use in fertilizer plants in other parts of the world, especially in the U.S.S.R.

In the combined domestic and export fertilizer markets, DAP accounts for the largest share of phosphoric acid consumption, at about two thirds of the total. Because phosphoric acid exports are a large fraction of all phosphate materials exports, DAP accounted for about 60% of phosphate exports on a P_2O_5 basis in 1985.

In late 1985, because their inventories were too large, India and China stopped their imports of DAP from the U.S. and have yet to restart on any scale. As a result, industry sources forecast that exports of DAP in 1986 could fall as much as a third, assuming that those two countries and others not now buying much will return to former purchasing levels in the second half of the year. More likely, sources say, exports of DAP will be down less than a third for the year. But the loss in exports will be too great to be offset by a better fall fertilizer season in the U.S., leading to the estimated 5% decline in phosphoric acid production for all of 1986.